



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/526,360 | 12/30/2005 | Bruno H. Walter | 32361-265 | 8956 |
| 74954 | 7590 | 02/25/2008 | EXAMINER | |
| Bennett Jones LLP 4500 Bankers Hall East 855- 2nd Street SW Calgary, AB T2P 4K7 CANADA | | | BOMAR, THOMAS S | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3676 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 02/25/2008 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,360

Applicant(s)

WALTER ET AL.

Examiner

Shane Bomar

Art Unit

3676

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-26 and 28-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-26 and 28-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 14-18, and 20-35 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,287,714 to Walker.

Regarding claims 1, 6, 15, 18, 26, 30, and 31, Walker discloses a drill bit for forming a borehole through an earthen formation, the drill bit connected to string 1 comprising:

a housing 2 including an upper end, a lower end, an axis defined as extending through the upper end and the lower end and a bore extending parallel to the axis into the lower end;

a mandrel 3 slidably disposed in the bore, the mandrel having a lower end and an upper end;

a center cutter face on the mandrel lower end, the face having cutters 8 thereon, and a fluid jetting port 16 opening through the center cutter face between the cutters 8 (Fig. 2), the port allowing drilling fluid flow therethrough for cleaning and lubricating the center cutter face as is notoriously known in the art (page 2, col. 1, lines 33-43);

two arms 5 each having a lower end and connected by a pivotal connection 7 to the housing adjacent the bore, the arms being radially moveable by rotation about the pivotal connection between a stored position (Fig. 5) and an expanded position (Figs. 1

and 6), the arms being drivable into the expanded position by the mandrel bearing there against to drive the arms out; and

wherein outer cutter faces 4 are on the arm lower ends so that outer cutter faces and the center cutter face are substantially continuous and co-planar (Figs. 1 and 3; page 2, col. 1, lines 20-65).

Regarding claims 2-5, 20, and 21, Figures 1, 5, and 6 show that the arms are pivotally connected in unnumbered slots in the housing 2, wherein the slots, in conjunction with the inner surface of the string 1, conform about the arm side and upper surfaces to support the arm and provide for transfer of stress into the housing.

Regarding claims 9, 10, and 22-25, Figures 1-3 show that fluid will exit ports 16 and enter a channel between cutters 8 on the center face, whereby the fluid will then travel to channels between cutters 4 on the outer face and the center cutters 8 so that fluid is conveyed along the outer face.

Regarding claims 14 and 32, comparing Figure 5 to Figure 6 shows that the arms 5 are always supported by the mandrel, which also limits their outward movement.

Regarding claims 16 and 17, pins 11 releasably lock the mandrel 3 against sliding movement within the housing, while also allowing rotation of both the housing and the mandrel due to the interengagement (Figs. 1, 2, 5, and 6; page 2, col. 1, lines 56-65).

Regarding claims 28 and 29, the bit passes through the drift diameter of the string 1 when collapsed, while in the expanded position, the bit is selected to be capable of use to drill a bore hole of a gauge greater than the outer diameter of a tube string through which it has been tripped (Figs. 1 and 3-6).

Regarding claim 33, Figure 5 shows that the arms 5 extend into the bore of the housing 2 when the arms are collapsed.

Regarding claim 34, Walker discloses a drill bit for forming a borehole through an earthen formation, the drill bit comprising: a housing 2 including an outer surface, an upper end, a lower end, an axis defined as extending through the upper end and the lower end, a bore extending into the lower end and a slot opening through the housing providing communication between the outer surface and the bore (the slot is unlabeled, but is defined by the shaft 1 and housing 2 wherein the pivotal connection 7 resides), the slot being spaced back from the lower end; a mandrel 3 slidably disposed in the bore, the mandrel having a lower end and an upper end; a centre cutter face 8 on the mandrel lower end; an arm 5 having a lower end and connected by a pivotal connection 7 in the slot of the housing adjacent the bore, the arm being radially moveable by rotation about the pivotal connection between a stored position and an expanded position protruding beyond the outer surface of the housing, the arm being drivable into the expanded position by the mandrel bearing thereagainst to drive the arm out; and an outer cutter face 4 on the arm lower end (Figs. 5 and 6).

Regarding claim 35, the slot is formed to conform about the arm side, lower and upper surfaces to support the arm and provide for transfer of stress into the housing, especially since the shaft 1 defines part of the slot (Figs. 1, 5, and 6).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 11-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker in view of US 2003/0183424 to Tulloch.

Regarding claims 11, 12, and 19, Walker teaches the drill bit of claims 1 and 18 that includes a housing and a mandrel slidably disposed therein, wherein it appears that weight on the bit is what causes the mandrel to push the arms into their outward state. It is also taught that a chamber 21 is located between the housing and the mandrel, the chamber formed to accept hydraulic-fluid pressure from ports 10 that act as nozzles through the mandrel inner bore (Fig. 2). However, it is not explicitly taught that the chamber acts as a hydraulic drive to drive sliding movement of the mandrel along the bore of the housing.

Tulloch teaches an expandable bit similar to that of Walker, wherein mandrel 3A is slidably disposed in housing 2A so that downward movement of the mandrel extends the cutter carrying arms 6A and 7A (Figs. 9 and 10). It is further taught that while weight on the bit can cause the sliding movement and subsequent bit expansion, it is hydraulic chamber 17 that is supplied with fluid pressure through ports in the inner mandrel to drive the sliding movement of the mandrel (paragraphs 0061-0063). It would have been obvious to one of ordinary skill in the art, having the teachings of Walker and Tulloch before him at the time the invention was made, to modify the bit taught by Walker to include the hydraulic actuation of Tulloch. One would have been motivated to make such a combination because the references address the narrow problem of storing cutter arms in a retracted position and expanding them with a slideable mandrel downhole; therefore a person seeking to solve that exact problem would consult the references and apply their teachings together (Id. at 1277, 69 USPQ2d at 1691).

Regarding claim 13, Walker does not explicitly teach that cutters are on the side surface of the arms. Tulloch shows in Figures 1-4 that the cutter arms have cutters mounted on the side surfaces of the arms. It would have been obvious to one of ordinary skill in the art, having the teachings of Walker and Tulloch before him at the time the invention was made, to modify the arms taught by Walker to include the side cutters of Tulloch. One would have been motivated to make such a combination because the references address the narrow problem of storing cutter arms in a retracted position and expanding them with a slideable mandrel downhole; therefore a person seeking to solve that exact problem would consult the references and apply their teachings together (Id. at 1277, 69 USPQ2d at 1691). The side cutters would further allow the

arms to be subject to less wear and possibly provide extra cutting capability where necessary (paragraph 0045 of Tulloch).

Response to Arguments

6. Applicant's arguments filed October 15, 2007 have been fully considered but they are not persuasive. With respect to claim 1, the Applicant argues that the fluid jetting ports of Walker do not open through the center cutter face between the cutters, nor are they oriented to clean and lubricate the center cutter face. The Examiner respectfully disagrees with these statements because Figure 2 clearly shows the port 16 opening between the cutters 8 of the center cutting face. The specification of Walker then goes on to state that the port 16 discharges drilling fluid for the rolling cutters 8, said drilling fluid being notoriously known in the drilling art for cleaning and lubricating such rolling cutters (page 2, col. 1, lines 33-43). With respect to claim 18, the Applicant argues that the cutting faces of Walker are not continuous or co-planar, as seen by the non-continuous and non-planar cutting result seen in Figures 1 and 2. The Examiner again respectfully disagrees because Figure 6 clearly shows that once the cutting faces are in the extended position, the bottom of each cutting face lies in the same, continuous plane (e.g., if one were to draw an imaginary line along the cutting faces, the ends of the faces will all lie on the same line). Furthermore, the argument is more limiting than the claim itself because the Applicant is addressing the shape of cutting result in the hole; such shape and result is not part of the current claims. With respect to new claim 34, the arms 5 do reside in slots set back from the lower end of the housing 2.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is (571)272-7026. The examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shane Bomar/
Examiner, Art Unit 3676